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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/064,894	08/27/2002	Deepa Ramaswamy	200-1576	7972

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EXAMINER

BEHNCKE, CHRISTINE M

ART UNIT	PAPER NUMBER
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3661

DATE MAILED: 02/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/064,894

Applicant(s)

RAMASWAMY ET AL.

Examiner

Christine M. Behncke

Art Unit

3661

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 30 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 August 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to the Remarks filed 30 July 2004, in which claims 1-18 were presented for examination.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1, 11, and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Mizuno et al. US Patent No. 6,555,928.

4. **(Claims 1 and 11)** Mizuno et al. discloses a modular vehicle system controller and method of organizing said controller for use with a hybrid electric vehicle (Column 2, lines 8-17), said controller comprising a plurality of removable control portions (Column 12, lines 16-23 and lines 34-45), wherein each respective portion corresponds

to a certain hybrid electric vehicle drive system functionality (battery control and fuel cell control respectively).

5. **(Claim 4)** Mizuno et al. further discloses wherein said hybrid electric vehicle includes a battery pack (battery unit 36) and wherein said plurality of control portions further includes a battery maintenance control portion which is effective to control opening and closing of contactors within the battery pack, monitor the battery pack for faults, and process the battery pack power limits (Column 12, lines 16-33).

6. **(Claim 12)** Mizuno et al. further discloses wherein the step of partitioning said controller into a plurality of removable control portions, each of said plurality of control portions corresponding to a particular vehicle functionality further comprises the step of: logically grouping said plurality of control portions into functional groups (integrated units, Column 12, lines 3-55).

7. **(Claim 15)** Mizuno et al. further discloses a method of controlling a plurality of systems within a hybrid electric vehicle (Column 2, lines 8-17), comprising steps of: logically grouping said plurality of systems into functional hybrid electric vehicle drive system groups (integrated units, Column 12, lines 3-55); providing a vehicle system controller having a modular architecture (Figure 5, Column 12, line 66-Column 13, line 5); providing a plurality of removable modular system control portions corresponding to each of said functional hybrid electric vehicle drive system groups (Column 12, lines 16-23 and lines 34-45); and selectively coupling said plurality of modular system control portions to said vehicle system controller (integrated units, Column 12, lines 3- Column 13, line 5).

8. **(Claims 13 and 16)** Mizuno et al. further discloses wherein each of said plurality of control portions represents a removable hardware portion (each unit which includes a controller is removably mounted to the vehicle, Column 12, lines 3-55).
9. **(Claims 14 and 17)** Mizuno et al. further discloses wherein each of said plurality of control portions represents a removable software portion (Figures 7 and 8 and Column 13, lines 15-20).
10. **(Claim 18)** Mizuno et al. further discloses wherein the step of logically grouping said plurality of systems into functional groups further comprises the step of maintaining a hierarchical control architecture for said plurality of systems (Figure 6, Column 12, line 56-Column 13, line 5 and Column 7, line 57- Column 8, line 5).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 2, 3, and 5-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mizuno et al. in view of Raftari et al. US Patent No. 6,490,511.
13. **(Claims 2 and 3)** Mizuno et al. discloses the modular system controller previously discussed but does not disclose the selection of an operating mode or determining a total output torque. However, Raftari et al. does teach a vehicle mode control portion which is effective to select an operating mode of said vehicle (Abstract

and Column 2, lines 14-28). Raftari et al. further teaches an output torque requestor control portion that is effective to receive torque commands from a plurality of vehicle subsystems and to determine a total output torque (Column 5, line 57-Column 6, line 11).

14. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the system of Mizuno et al. with the teachings of Raftari et al. because the system of Mizuno et al. suggests the desired system wherein the owner of the vehicle can opt for removable modules to the vehicle controller which increases the ease of fixing and updating the vehicle control units. Where as Raftari teaches more efficient and encompassing control of the powertrain system, which would make the hybrid vehicle of Mizuno et al. run more effective.

15. **(Claim 5)** Mizuno et al. further discloses the modular system controller previously discussed and driver information control portion which is effective to receive signals from vehicle sensors and to calculate vehicle operating data which is conveyed to a driver of said vehicle (Column 5, lines 41-58 and Figure 3).

16. **(Claim 6)** Mizuno et al. further discloses wherein said hybrid electric vehicle includes at least one power source (battery unit 36), and wherein said plurality of control portions further includes an energy management control portion which is effective to control the delivery of power to said vehicle by said at least one power source (Column 11, line 61- Column 12, line 2).

17. **(Claim 7)** Mizuno et al. discloses the modular system controller previously discussed and further discloses using regenerative braking with a regenerative control module, but does not disclose control of the engine. However, Raftari et al. does teach a brake system control which controls regenerative and engine compression braking functions within said vehicle (Figure 4).

18. **(Claim 8)** Mizuno et al. discloses the modular system controller previously discussed but does not explicitly disclose torque estimation. However, Raftari et al. does teach a torque estimation control portion which estimates an amount of torque produced by an at least one power source (Column 5, lines 21-52 and Column 7, lines 39-47).

19. **(Claim 9)** Mizuno et al. discloses the modular system controller previously discussed but does not disclose an internal combustion engine. However, Raftari et al. does teach wherein an at least one power source comprises an internal combustion engine (Abstract).

20. **(Claim 10)** Mizuno et al. discloses the modular system controller previously discussed but does not disclose a control for a process and timing of startup and shutdown of the engine. However, Raftari et al. does teach an engine control unit which controls a process and timing of when to startup and shutdown the internal combustion engine (Column 2, lines 53-64).

21. Concerning claims 7-10, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the system of Mizuno et al. with the teachings of Raftari et al. because the system of Mizuno et al. suggests the desired system

wherein the owner of the vehicle can opt for removable modules to the vehicle controller which increases the ease of fixing and updating the vehicle control units. Where as Raftari teaches the more widely used powertrain system comprising an internal combustion engine in conjunction with the electric power system and the control and monitoring of that system, which would make the hybrid vehicle of Mizuno et al. run more effective and be more acceptable by consumers.

Response to Arguments

22. Applicant's arguments filed 30 July 2004 have been fully considered but they are not persuasive. As discussed above, the Examiner believes the reference of Mizuno et al. does disclose a plurality of removable control portions. Mizuno et al. does disclose that the "battery unit 36" and the "fuel cell unit 38" are the removable portions. However, Mizuno et al. defines those units as follows:

"the battery unit 36 preferably comprises a battery 92, **a battery controller 94** and a battery relay 96. The fuel cell unit 38 preferably comprises a fuel cell 100 to generate electrical power, **a fuel cell controller 102**, a reverse current prevention element 104 and a fuel cell relay 106." (Column 7, lines 43-50)

Mizuno et al. then discloses the units are removably mounted to the vehicle. Since the units comprise controllers and the reference describes the unit as a "unitary construction" the controllers in the units are also removably mounted to the vehicle.

Conclusion

23. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

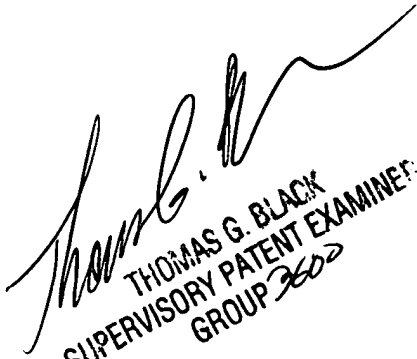
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine M. Behncke whose telephone number is (703) 305-0589. The examiner can normally be reached on Monday - Friday 8:30 AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas G. Black can be reached on (703) 305-8233. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 3661

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

02-17-2005


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